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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,966	05/04/2001	Hiroyuki Hyodo	2803-65479	9327

7590

07/11/2003

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EXAMINER

RESAN, STEVAN A

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/849,966

Applicant(s)

HYODO ET AL.

Examiner

Stevan A. Resan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-9,11-13,18,20 are is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9,11-13,18,20 are is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

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1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4,11,20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. The claims are inconsistent with claims 1,8,14 from which they depend.
4. Claims 1,2,4-9,11-13,18,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veerasamy et al US 5858477 taken in view of Veersamy et al US 5,603,225 and Takahashi et al JP 10-143836 .

Veerasamy et al '477 disclose a carbonaceous protective layer for protecting an underlying material which is formed by filtered cathodic arc process (Fig 5 Col 15 line 47- Col 16 line 5) which may have nitrogen distributed therein as in claim 1 in a content of 4 to about 30 atomic percent nitrogen which overlaps the range of claims 2 and 9. The carbon protective layer may be present on a magnetic recording medium comprising a non-magnetic substrate having a magnetic layer applied thereon as in claims 7,8 (Fig 1) and may be used in a disk apparatus as in claim 18 (See background Col 2 lines 6-29 and col 4 lines 40-46). Veerasamy et al 477 disclose a carbon coating having a hardness of > 50 Gpa as in claims 5,12 which is not significantly altered in the presence of nitrogen. Since contact angle as in claims 6,13 is related to nitrogen content (i.e. polarity) the nitrogen containing film of Veerasamy et al 477 would overlap the claimed ranges (For evidence see Veersamy '225 Col 7 lines 33-36).

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Veerasamy et al 477 do not disclose a carbon layer in which a nitrogen concentration is distributed in an inclined concentration gradually increasing from a bottom surface side to a top surface side.

However, Takahashi et al teach that nitrogen may be contained in a carbon protective layer of a magnetic recording medium in a concentration gradient in the thickness direction of the carbon layer [0045] with the layer concentration highest at the surface. (See abstract)

Therefore it would have been obvious to one of ordinary skill in the art to vary the nitrogen concentration as taught by Takahashi et al in the nitrogen doped carbon protective film of Veerasamy '477 in order to improve CSS performance when using a perfluoropolyether lubricant as taught by Takahashi et al.

5. Applicant's arguments filed 16 May 2003 have been fully considered but they are not persuasive.

Applicants have amended the claims and argue that the present claims require nitrogen distributed in an inclined concentration gradually increasing from a bottom surface side to a top surface side in the carbonaceous protective layer while the '225 patent and other references do not teach this feature.


Applicants argue that in the '225 patent nitrogen is doped in an upper portion of the DLC layer and that there is no "gradual increase". However it would have been obvious to one of ordinary skill in the art to have an inclined concentration gradually increasing from a bottom surface side to a top surface side in the carbonaceous protective layer (as taught by Takahashi- See [0045]) for the reasons set forth above.

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6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. This application contains claims 14-17 drawn to an invention nonelected with traverse in Paper No. 6. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stevan A. Resan whose telephone number is (703) 308-4287. The examiner can normally be reached on Tues-Fri from 7:30AM to 6:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7718

  
**STEVAN A. RESAN**  
**PRIMARY EXAMINER**